INTERNATIONAL ACTIVITIES IN ENVIRONMENTAL MEASUREMENTS

RADIOLOGICAL ASSESSMENT

◆ *Joint Russian-American Field Studies at Mayak Production Association*

EML is participating as the federal technical lead laboratory in the Russian-United States subsurface contaminant transport studies in Russia conducted under the auspices of the Joint Coordinating Committee for Environmental Restoration and Waste Management (JCCEM) between the DOE Office of Environmental Management (EM) and the Russian Ministry of the Atomic Energy (MINATOM). The purpose of this work is to examine the transport of radionuclide contaminated groundwater migrating from a former surface repository at Lake Karachai towards the Mishelyak River. Collaborators in the field investigations are Lawrence Berkeley Laboratory (LBL), Pacific Northwest National Laboratory (PNNL), Savannah River Laboratory (SRL), and EML. Using both Russian and U.S. instrumentation, hydrogeological, geochemical, geophysical and radiometric measurements are being made within the territory of the Mayak P.A. to characterize and model the subsurface migration of the groundwater plume.

◆ *IAEA Mission to Kazakhstan*

EML scientists were part of an international team of experts whose mission was to perform a radiological assessment of the Former Soviet Union nuclear test site at Semipalatinsk and surrounding villages.

◆ *Radiological Evaluation at the Fissile Material Storage Facility*

At the request of the Defense Nuclear Agency, EML participated in a joint Russian-United States radiological evaluation of the construction site for the Fissile Material Storage Facility (FMSF), located within the territory of the Mayak P.A. in Russia. The purpose of this health and safety survey was to assess the potential radiation exposure to U. S. personnel who will participate in the delivery, training and maintenance of construction equipment for the FMSF.

◆ *Radionuclides in the Arctic Ocean*

EML is investigating the status and fate of radionuclides in the Arctic marine ecosystem resulting from waste disposal practices in the Former Soviet Union (FSU). EML is performing analyses to characterize the distribution of anthropogenic radionuclides (iodine, plutonium, and neptunium) in the Arctic Ocean as part of the Office of Naval Research's Arctic Nuclear Waste Assessment Program (ANWAP).

◆ *Remote Sampling and Analysis Systems*

EML has designed, developed, and installed at worldwide remote locations integrated radioactive aerosol sampling and analysis systems that can collect, analyze and transmit results by satellite or telephone communications with a minimum of technician intervention. To date fourteen Remote Atmospheric Measurement Systems (RAMS) have been deployed, some in continuous operation since 1987. A fully automated and completely unattended multi-sample surface air monitoring system was recently field tested. With a fully loaded sample tray, the system will allow over six months of unattended operation with weekly sampling.

DOE Arctic and Antarctic Policy Coordination

It is the Department's goals to encourage and support the important national and international scientific and engineering research programs required to carry out its policy as described in the United States Arctic and Antarctica Research Plans. As such, DOE supports the inter-agency Arctic Research Policy Committee (IARPC), the U.S. Antarctica Program (USAP) and the international Arctic Monitoring Assessment Program (AMAP). These activities are coordinated for the Department by personnel of EML.

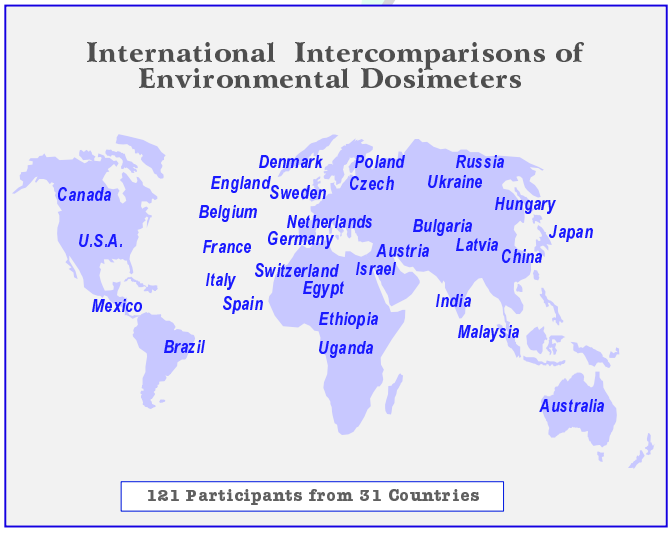
ANALYTICAL QUALITY ASSURANCE

◆ *International Participation in QAP*

The Quality Assessment Program (QAP), administered by EML, is an external, independent performance evaluation of the quality of the environmental radiological measurements reported by contractor laboratories to the DOE. While this program was designed for environmental radiological investigations conducted in the United States, it has attracted international participants. Currently, nine laboratories participate from the following countries: Canada, Argentina, Brazil, Russia, Japan, and the Republic of China. The QAP is addressing the global need for assurance that environmental radiological information is compatible and of known quality. Ultimately, the program could provide laboratories with a basis of comparison for the global community of environmental radiological laboratories.

◆ *International Intercomparison of Environmental Dosimeters*

The International Intercomparisons of Environmental Dosimeters were initiated in 1974 to assess the performance of passive, integrating detectors in the measurement of environmental radiation and to identify and investigate special problems associated with such measurements. These voluntary intercomparisons, administered by EML, are presently the only available large scale and universally recognized quality assurance program for passive environmental dosimetry.



◆ *International Atomic Energy Agency Activities*

– *Network of Analytical Laboratories*

The IAEA invited EML to join its International Network of Analytical Laboratories (ALMERA). EML will represent the United States in this consortium of expert laboratories that can be mobilized quickly to collect and analyze samples following a nuclear accident anywhere in the world. EML is currently analyzing samples collected in the atolls of Mururoa and Fangataufa in French Polynesia for an IAEA study of the current and long-term radiological situation following French nuclear testing in 1996.

– *International Radon Metrology Program*

EML, with its stable, NIST-traceable calibrated pulse ionization chambers and its expertise in aerosols and radon progeny measurements, has long been a reference laboratory for radon and thoron measurements. Currently EML is a regional intercomparison center in the International Radon Metrology Program (IRMP) whose aim is to provide the international scientific community with a network of reference and support services necessary to maintain high standards in the metrology of radon, thoron and their decay products.

◆ *WMO Global Atmospheric Watch*

EML has been identified as the Calibration Center for Radioactivity/Quality Assurance Science Activity Center (QA/SAC) for the World Meteorological Organization's (WMO) Global Atmospheric Watch (GAW) Program. EML will provide direction to GAW in measuring naturally-occurring radionuclides in the environment. In addition, quality assurance issues related to the sampling and analyses of isotopes, such as sampler volume determination, filter paper efficiency and gamma-ray spectrometric analyses, will be identified and guidance will be provided.

Visiting Scientist Program

In cooperation with the IAEA's Fellowship Program and those of other Institutes and Laboratories, EML's visiting scientist program fosters international exchange of scientific information by providing for the establishment of research projects and training assignments of mutual interest and benefit. During the past two years, scientists from Taiwan, Egypt, Korea, France, Japan, Indonesia Morocco, and Brazil have trained at EML for periods from three months to a year in areas covering environmental radiation, radiochemistry, and analytical chemistry.

Environmental Measurements Laboratory, 201 Varick Street, New York, New York 10014-4811 U. S. A.
Contact: Office of the Laboratory Director ☎ Voice: 212-620-3619 💻 E-mail address: webmaster@eml.doe.gov